

## Setting up a Speed Map in Turbocnc for the Digispeed Speed Controller on a Sherline Lathe

To carryout the Mapping you will require a tachometer to measure the spindle speeds.

The following assumes the Spindle Power (Out), Spindle Direction and Digispeed control pins have been set via the Configure Menu.

The motor should be on and under Digispeed control i.e Digispeed must be connected and powered ( Left LED shows Green)

Before mapping it is suggested that a table is drawn up to record the value to RPM results to be entered on the map. See Fig 1. for an example blank table using a step of 32 between each value. Table 2 shows a completed table.

Keys inside < >

<Alt+C> indicates press both the Alt and the C key at the same time

<C> indicates press the C key only

<Ent> Indicates Enter

<Tab> indicates Tab

From the startup screen

1. <Alt+C> to select the **Configure Menu**.
2. <M> to select **Speed Map**

The curser will be in the box marked Ratio.

Enter the ratio you wish to create the map for. Ratio 1 represents the lowest pulley speed and is selected in the program with a **M40** code. Ratio 2 is the high speed pulley and is selected in the program with a **M41** code.

Assuming ratio 1 is to be mapped first. **Check the drive belt is on the largest pulley on the spindle**

1. <1> in the Ratio box
2. <Tab> to the Set Gear Box
3. <Ent> to set the gear. - The curser will return to the Ratio box.
4. <Tab><Tab><Tab> to the Value box and enter the value to map to (initially 32)
5. <Tab> to RPM box ensure this is at 0 (Zero) if not <0> to overwrite the value shown
6. <Tab> to the Set box
7. <Ent> A message will appear warning the spindle will turn on If it is safe <Ent> to select OK. The spindle will start at the speed commanded by step 32.

The curser will return to the Ratio box.

8. Measure and record the RPM using the Tachometer.

9. <Tab><Tab><Tab><Tab> to the RPM box enter the recorded RPM (**do not press Enter**)
10. <Tab><Tab><Tab> to the Add box
11. <Ent> to record the map entry

The curser will jump to the Ratio box.

12. <Tab><Tab><Tab> to the Value box and enter the next value to be mapped i.e. 64
13. <Tab> to the RPM box and <0> to overwrite the RPM shown (**do not press Enter**).
14. <Tab> to the Set box

15. <Ent> The Spindle speed will increase to the speed commanded by step 64.

The curser will jump to the Ratio box.

16. Measure and record the RPM using the Tachometer.

17. <Tab><Tab><Tab><Tab> to the RPM box enter the recorded RPM (**do not press Enter**)

18. <Tab><Tab><Tab> to the Add box

19. <Ent> to record the map entry

The curser will jump to the ratio box.

Check the map to ensure both measurements have been recorded

(Although not necessary, to turn off the spindle <Alt+T> or

<Tab><Tab> to the Toggle Box

<Ent> to switch off)

20. <Alt+E> to Edit the map

The first column should show Value 32 and your recorded RPM and Value 64 and your recorded RPM

If all is correct

21. <Alt+O> to return to the speed mapping page

If the spindle has been turned of <Alt+T> or <Tab><Tab> <Ent> to it on.

Continue from 12.

If the spindle has not been turned on when Set is selected (14) the warning message will appear to warn that the spindle will be turned on.

Continue to map steps to 1023. Checking occasionally to ensure the mappings are being entered in the map. (20).

When the mapping is complete,

<Alt+C> to select the Configure Menu

<S> to save to the current configuration

Or

<A> to save to a named configuration.

## Sherline Lathe Speed Maps

### Speed map settings M40

Value	RPM	Value	RPM	Value	RPM	Value	RPM
32		288		544		800	
64		320		576		832	
96		352		608		864	
128		384		640		896	
160		416		672		928	
192		448		704		960	
224		480		736		992	
256		512		768		1023	

### Speed map settings M41

Value	RPM	Value	RPM	Value	RPM	Value	RPM
32		288		544		800	
64		320		576		832	
96		352		608		864	
128		384		640		896	
160		416		672		928	
192		448		704		960	
224		480		736		992	
256		512		768		1023	

Fig 1 Record Sheet for Speed Map

## Sherline Lathe Speed Maps

### Speed map settings M40

Value	RPM	Value	RPM	Value	RPM	Value	RPM
32	110	288	403	544	720	800	1037
64	130	320	445	576	753	832	1078
96	164	352	478	608	795	864	1120
128	210	384	520	640	837	896	1162
160	242	416	566	672	879	928	1204
192	280	448	601	704	918	960	1244
224	324	480	638	736	958	992	1286
256	366	512	677	768	998	1023	1318

### Speed map settings M41

Value	RPM	Value	RPM	Value	RPM	Value	RPM
32	255	288	889	544	1546	800	2258
64	295	320	978	576	1627	832	2350
96	376	352	1060	608	1709	864	2448
128	461	384	1144	640	1796	896	2540
160	550	416	1237	672	1895	928	2644
192	633	448	1320	704	1981	960	2736
224	717	480	1409	736	2072	992	2826
256	804	512	1465	768	2170	1023	2895

Fig.2 Example of completed Speed Map